REMARKS

The present paper is filed in response to a non-final office action dated April 7, 2010. The paper is filed with a fee of a three-month extension of time to respond. Applicants petition for a three month extension and hence the instant response is timely filed.

A. Status of Claims:

Claims 97 and 157-189 are pending in the instant case of which claim 176 is withdrawn. Claims 97, 157-175, and 177-189 are variously rejected under 35 U.S.C. 112, sixth paragraph, 35 U.S.C. 112, first paragraph, and 35 U.S.C. 103. Applicants respectfully traverse the rejection and request reconsideration in view of the above amendments and remarks below.

B. Rejection of Claims 183 and 189 under 35 U.S.C. 112, first and sixth paragraphs

Claims 183 and 189 were rejected under 35 U.S.C. 112, sixth paragraph and 35 U.S.C. 112, first paragraph. Applicants have cancelled claims 183 and 189. As such, each of these rejections may be withdrawn. Applicants respectfully request withdrawl of the rejection.

C. Rejection under 35 U.S.C. 103(a)

Claims 97, 157-175, 177-182, 184, 186-187 were rejected under 35 U.S.C. 103(a) as being unpatentable over Southern et al (Genomics, 1992, 13:1008-1017) in

view of Kauvar (U.S. Patent No. 5,356,784 issued 18th October 1994) and/or US Wang (U.S. Patent No. 4,618,475 issued 21 October 1986).

According to the Examiner Figure 3 line 1 of the figure legend of Southern discloses a support comprising an array of four microchips, each having an array of oligonucleotide probes immobilized thereon. The same figure is purported to teach each array is in one of four quadrants on the surface. The four quadrant arrangement defines a physical location of the surface and that assignment in such an arrangement defines a boundary between the quadrants. The Examiner acknowledges that Southern does not teach a physical barrier for keeping the arrays and/or probes in corresponding arrays. In the absence of this teaching in Southern, the Examiner adds the teaching of Kauvar and/or Wang.

According to the Examiner Kauver teaches an array of a reaction regions on a solid support each region having a plurality of ligands immobilized in the region wherein the regions are separated by hydrophobic barriers. While it is true that the disclosure of Kauver at Col. 7, lines 39-45 teaches that:

> One particularly convenient method to construct a device with the required number of test regions comprises a basic hydrophilic matrix wherein regions of the matrix are separated from each other by hydrophobic barriers. Thus, a cellulose mat might be subdivided into squares or other suitably shaped regions by lines of wax or other hydrophobic barrier.

the Applicants submit that this disclosure does not render obvious the claims of the present invention because throughout the disclosure of Kauver there is a requirement

for measuring of a single analyte which in the case of Kauver is methyl mannose, a small molecule that binds to Conconavalin A. In contrast, the array of arrays of the resent invention is one that is intended to identify or bind to different analytes. In addition, Southern in Figure 3 merely shows an arrangement of four arrays of oligonucleotides wherein each array is identical in terms of the oligonucleotides which are attached to each array in a way that gives rise to replicate measurements of the same hybridization reaction. In this arrangement, parallel use of all four arrays in the same hybridization reaction conditions is made possible but parallel use in different hybridization reaction e.g., using different labeled probes for hybridization reactions in individual unit arrays on a single support cannot be accomplished because the individual arrays of Southern lack a separation of the unit arrays that would allow different hybridization reactions to bleed over onto other arrays. The skilled person would not be motivated to combine Kauver with Southern as Kauver is directed to increasing the sensitivity of detection of a single analyte. The two references are in fact in two different technical endeavors. The first reference, Southern is related to sequencing of a target nucleic acid sequence of unknown structure to produce an identity of the sequence whereas the second reference, Kauver, relates to a quantitative or qualitative detection of an amount of a known analyte of known structure. Given that the two references are in two different fields of technical endeavor it would not have been obvious to those skilled in the art that a combination of Kauver and Southern would result in a teaching of the invention as currently claimed.

Likewise, the combination of Wang et al and Southern et al also does not render obvious the claimed invention. Wang is cited for its teaching at Column 4 lines 22-53

which states that it virtually eliminates cross-contamination between adjacent reagent areas of multiple reagent matrices devices. However, the Wang disclosure is simply related to creating a matrix with a barrier pad in it that is impregnated with a hydrophobic material. There is nothing in Wang that shows why it would be desirable or necessary to place such hydrophobic material between the four arrays that are taught in Southern. In the absence of a teaching in Southern or Wang that implied that it would be required to modify the teachings of Southern the skilled person would not feel the need to modify Southern. The only way to arrive at that modification is to employ the claims and the disclosure of the present invention as a roadmap to identify the missing elements from Southern in Wang. This is the epitome of hindsight reconstruction of the invention and should not be used for establishing an obviousness rejection.

The Wang and Kauver references also were used in a further rejection. Claims 97, 157-175, 177-189 were rejected under 35 U.S.C. 103(a) as being unpatentable over Drmanac et al (Electrophoresis 1992 13:566-573) in view of Kauver (U.S. Patent No. 5,356,784) and/or Wang (U.S. Patent 4,618,475). The Drmanac 1992 reference shows sequencing of a target nucleic acid and it is the target nucleic acid that is immobilized on the substrate. The detection in the Drmanac 1992 reference is achieved by application of labeled probes to the immobilized target. The fact that the probes are not immobilized in the Drmanac reference means that the need for separation of the different areas of substrate is not crucial because all of the substrate is coated with the nucleic acid target sequence that is to be sequenced. Given that there is no need for such separation in the Drmanac 1992 paper, there would be no reason for the skilled person to look to the art to identify references that show hydrophobic barriers. In

addition, as discussed above, just as the Kauver and the Southern references are in two different technical endeavors, so are the Kauver and Drmanac references because again, Kauver is directed to increasing the sensitivity of detection of a single known analyte (either qualitatively or quantitatively) whereas Drmanac is directed to a method of identifying the sequence of a target where the structure of that target is unknown. Thus, the combination of Drmanac and Kauver would not render obvious the claims of the present invention.

Likewise Wang et al. does not add to the disclosure of the Drmanac 1992 reference. There is nothing in Wang that shows why it would be desirable or necessary to place such hydrophobic material in the array of Drmanac. In the absence of a teaching in Drmanac or Wang that implied that it would be required to modify the teachings of Drmanac, the skilled person would not feel the need to modify Drmanac. The only way to arrive at that modification is to employ the claims and the disclosure of the present invention as a roadmap to identify the missing elements from Drmanac in Wang. This type of hindsight reconstruction of the claimed invention should not be used for establishing an obviousness rejection.

In view of the remarks presented above, Applicants believe the rejection may properly be withdrawn and Applicants respectfully request reconsideration of the rejection.

The Commissioner is authorized to charge any additional fees or credit any overpayment to the Deposit Account of McAndrews, Held & Malloy, Account No. 13-0017.

Dated: October 7, 2010

Respectfully submitted,

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